



Missouri Department of Natural Resources

## Total Maximum Daily Load Information Sheet

### Fox River

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#### Waterbody Segment at a Glance:

**County:** Clark  
**Nearby Cities:** Wayland  
**Length of impairment:** 12 miles  
**Pollutant:** Manganese  
**Source:** Natural



State map showing location of watershed

**TMDL Priority Ranking:** Low

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#### Description of the Problem

##### Beneficial uses of Fox River

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life and Human Health associated with Fish Consumption
- Boating and Canoeing
- Drinking Water Supply

##### Use that is impaired

- Drinking Water Supply

##### Standards that apply

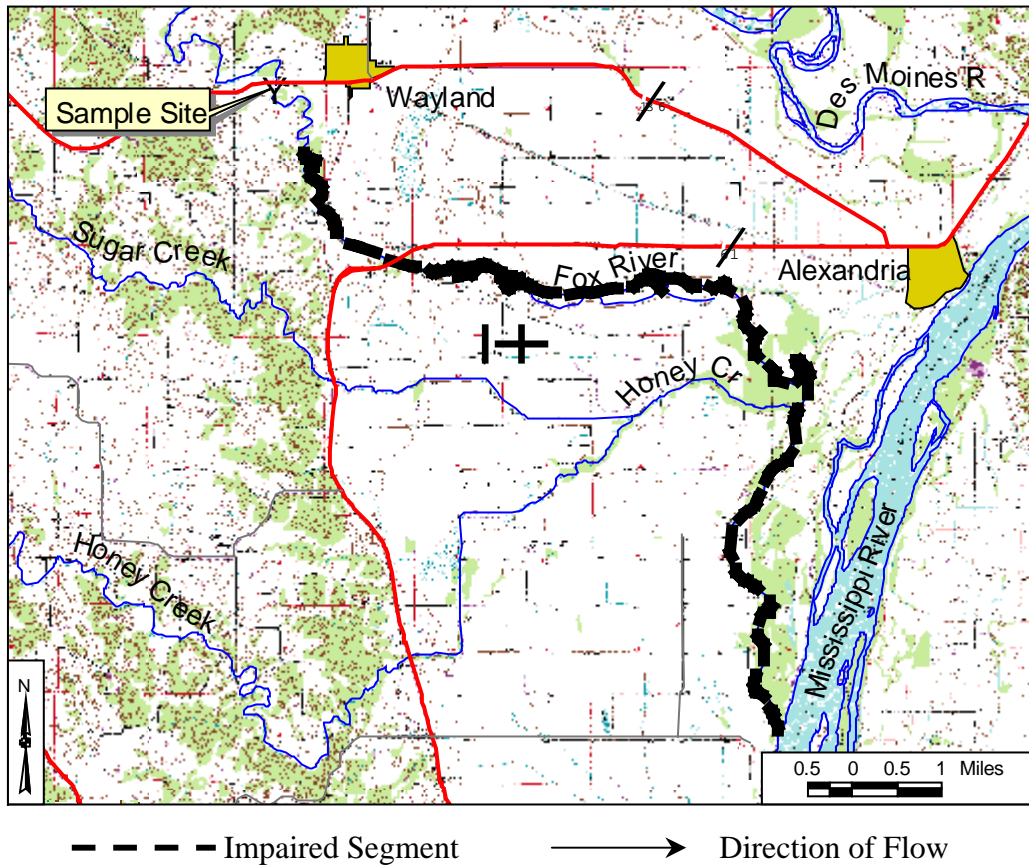
Missouri Water Quality Standards in 10 CSR 20-7.031 Table A give 50 µg/L as the maximum amount of manganese allowed for Drinking Water Supplies. This is an aesthetic standard that seeks to protect a water supply against possible taste, odor and laundry staining problems caused by excessive amounts of manganese. Exceedence of this standard is not a threat to human health.

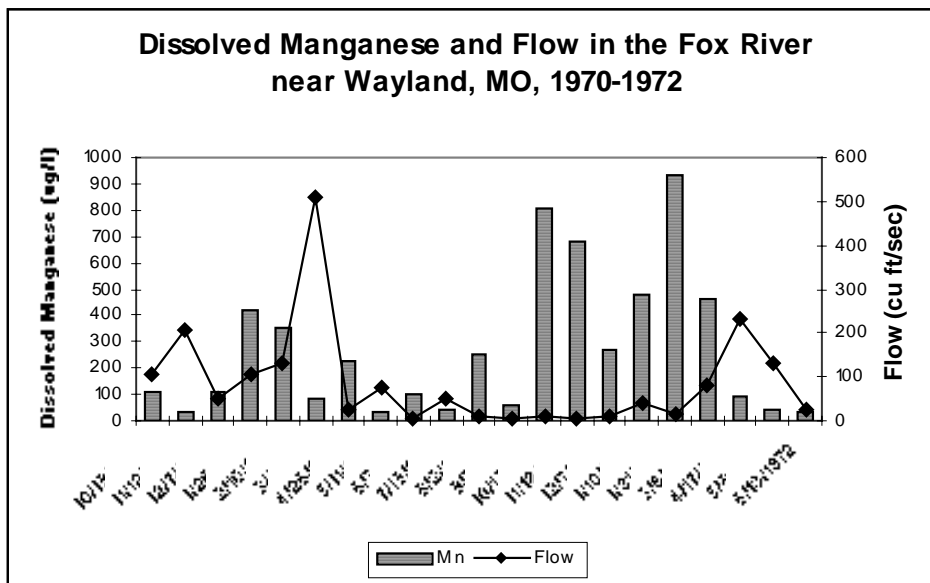
Occasional monitoring of the Fox River near Wayland, Missouri over many years has shown an average level of dissolved manganese of 262 µg/L (micrograms per Liter or parts per billion, based on 29 individual samples). There are no known significant man-made sources of manganese in this watershed. The source of the manganese is believed to be natural weathering and erosion of earth materials (soils and subsoils) in this watershed. Several other streams in Northeastern Missouri also have elevated levels of dissolved manganese.

Manganese does not present any human health hazards, but is responsible for offensive tastes and appearances in drinking water. It can react with tannins in coffee, tea and in other beverages,

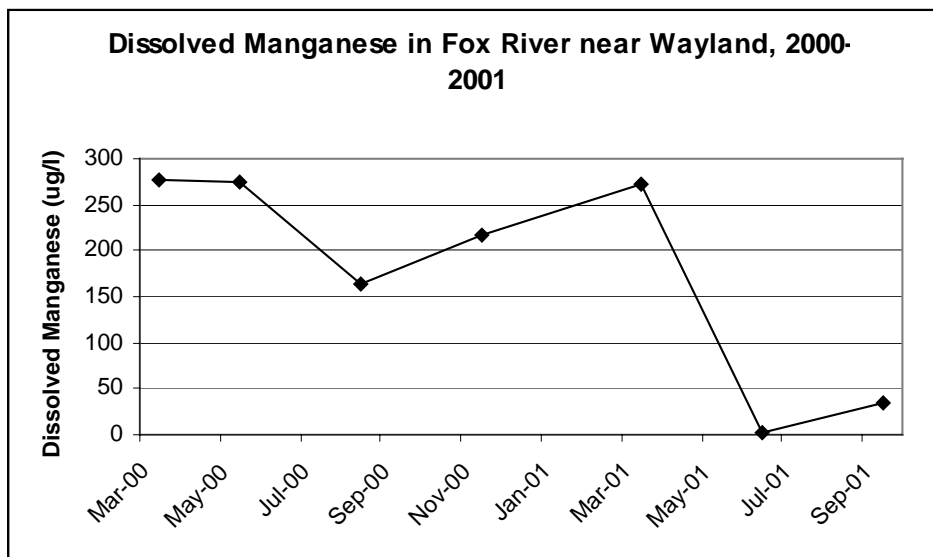
producing a black sludge, which affects both taste and appearance. Manganese causes a brownish-black staining of laundry, porcelain, dishes, utensils and glassware. Soaps and detergents do not remove the stains, and use of chlorine bleach can intensify the stains. Manganese can build up in pipelines, pressure tanks, water heaters and water softeners and causes equipment problems and energy cost increases due to mineral deposits.

**Map of Impaired Portion of Fox River Showing Location of Sampling Site**





Source: U.S. Geological Survey



Source: Missouri Department of Natural Resources

**For more information call or write:**

Missouri Department of Natural Resources

Water Pollution Control Program

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